

## The impact of leader self-efficacy on the characteristics of work teams

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### Abstract

**Purpose:** This work focuses on the study of the impact of the Self-Efficacy (SE) of the leader on Innovative Work Behavior (IWB), establishing the influence of contributing factors, such as the Organization Learning Capability (OLC) and Team Member Exchange (TMX).

**Design/methodology:** Structural equation modeling is used as a statistical test method. This technique enabled the quantitative validation of the qualitative hypotheses raised in the study.

**Findings:** The results suggest empirical evidence supporting a positive relationship among the constructs considered in the research.

**Originality/value:** This work develops a new relational model and contributes to the establishment of the mechanisms of the relationship among the variables of positive psychology, making an academic contribution within the broad field of resources and dynamic capabilities theory. It also makes a real social contribution in terms of its immediate application and the knowledge of how factors of selection (the self-efficacy of the leader) or handling (OLC) can influence variables on an individual level (TMX and IWB).

**Keywords:** Structural equations, Self-efficacy, Team member exchange, Innovative behavior, Organizational learning

**Jel Codes:** D23, M12, M54

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## 1. Introduction

Directing and managing employee behavior has been an ongoing cutting-edge topic in research and organizational practice. The modification and management of team member behavior has been present in psychological research for almost a century now (for example, Thorndike, 1913; Pavlov, 1927; Skinner, 1938; Bandura, 1969). Albert Bandura has proposed theories that relate human motivation and performance with individual behavior according to both the self-efficacy theory (Bandura, 1977) and cognitive social theory (Bandura, 1982, 1987 and 1997; Bandura & Walters, 1983). Self-efficacy is understood as the capacity or personal conviction that the subject has to successfully perform the required behavior in order to produce a particular result in a situation, activity or domain (Bandura, 1997). More specifically, Wood and Bandura (1989) propose that self-efficacy is the belief in one's own capacities in order to mobilize the cognitive resources, motivation and courses of action required to take on the demands of a particular task.

On the other hand, innovation is recognized as a source of competitive advantage, and thus success for the company, as it operates in an increasingly more intense and dynamic global competitive environment, in which the development of new products and processes is established as the way to compete (Takeuchi & Nonaka, 1986; Prahalad & Hamel, 1990; Nonaka, 1994; Nonaka & Takeuchi, 1995). Companies need to innovate in their quest for both long-term survival and competitive advantage (Tidd, Bessant & Pavitt, 2001; Simon, Elango, Houghton & Savelli, 2002).

Innovation is an organization's capacity to improve its products or processes, and its capacity to exploit the innovative potential of the (supposedly lesser) innovative initiatives of its employees, as an important element of organizational innovation, beyond the great technological advances (Gebert, 2002). These innovative initiatives are also referred to as innovative behavior (Scott & Bruce, 1994). Suffice it to say that many academic works back the opinion that individual innovation helps achieve organizational success (Amabile, 1988; Axtell, Holman, Unsworth, Wall, Waterson & Harrington, 2000; Smith, 2002; Unsworth & Parker, 2003).

Different empirical studies provide evidence of the positive effect of innovation on the performance, profitability, growth and effectiveness of the company (Prajogo & Ahmed, 2006; Berson, Oreg & Dvir, 2008).

Innovative behavior is also related to the organizational culture (Hartmann, 2006). So-called high-performance practices facilitate knowledge management and information exchange (Laursen & Foss, 2003), while human resources practices aligned with the promotion of organizational learning are associated with a greater level of organizational innovation (Shipton, West, Dawson, Birdi & Patterson, 2006).

Organizational learning, in turn, is increasingly positioned as a viable change initiative for survival (Senge, 1990). The positive performance of an organization that learns, and which therefore goes beyond what is considered standard, has been demonstrated in several studies, which are found primarily in the professional literature in the fields of health, social services and education (Kurtz, 1998; Gould, 2000; Carnochan & Austin, 2001; Gould & Baldwin, 2004; Hawkings & Shohet, 2006). The concept of organizational learning can be applied to business and non-profit organizations, schools, colleges and universities, as well as service organizations (Akhtar & Kahn, 2011).

In summary, the study establishes the relationships among the four variables set out above in order to determine the impact of the self-efficacy of the team leader on the innovative behavior of the team members, identifying the influence that the organizational learning capacity and exchange among team members have on it.

## **2. Review of the literature**

Important theoretical progress has been made over the last two decades in identifying the characteristics of the resources and capacities of a company that leverage a competitive advantage. Organizational resources lead to a sustainable competitive advantage when they are valuable, rare and inimitable, and have no substitutes (Barney, 1991). Resource and capacity theory recognizes that human capital is among the most important resources in terms of improving performance (Barney, 1991; Hitt, Bierman, Shimizu & Kochhar, 2001; Wright, McMahan & McWilliams, 1994). However, in order for human capital to generate economic benefits, the company must assemble, integrate and promote its capacities through the implementation of strategies that result in the differentiation of performance.

## **2.1. Self-efficacy**

Self-efficacy (SE) is specifically seen as the person's conviction regarding their capacity of motivation, exploitation of their cognitive resources and definition of courses of action to successfully execute a specific task (Bandura, 1977, 1997; Stajkovik & Luthans, 1998). In short, the effective performance of new and complex roles in any activity requires the individual to have enough confidence in his or her abilities to take on a role that covers a wider and more proactive range of activities that go beyond the traditional technical performance requirements for a specific job role (Parker, 1998). It is precisely this requirement, in relation to the organizational context, that shapes the connection to the conceptualization of self-efficacy.

Self-efficacy, as it refers to a person's judgment regarding his or her own capacity to handle specific situations, allows us to focus not only on the abilities of people, but also on their beliefs in terms of what they are capable of doing, regardless of the skills each actually possesses (Bandura, 1986; Gist & Mitchell, 1992). Empirical research has shown that people who feel capable of performing certain tasks do so better, persist in their efforts (even in the face of adversity), and are capable of better handling situations of change (Wood, Bandura & Bailey, 1990; Lent, Brown & Larkin, 1987; Hill, Smith & Mann, 1987).

## **2.2. Organizational Learning Capability (OLC)**

The studies that have been carried out have shown that organizational learning affects competitive advantage (Jashapara, 2003), as well as financial and non-financial performance (Bontis, Crossan & Hulland, 2002; Dimovski & Skerlavaj, 2005; Jiménez & Cegarra, 2006), and plays a part in the tangible and intangible benefits of strategic alliances (Simonin, 1997), the unit cost of production (Darr, Argote & Eppe, 1995), and innovation (Verdu, Llorens & Molina, 2005). Consequently, organizational learning capability (OLC) emerges as an essential competence for organizations that are capable of evaluating their environment in order to identify opportunities, threats and pressures for change, developing strategic competences through learning.

OLC establishes the levels of capability an organization has to apply management practices and maintain a precise and appropriate structure and procedures that enable it to improve, and facilitate and promote learning. This permits the organization to operate using the most appropriate and precise management practices, structures and procedures that facilitate and promote learning (Shoid, Kassim &

Salleh, 2012). Goh (2003) believes that the growth of these practices will promote greater learning capacity throughout the organization.

Having conducted an important review of the literature, Jerez, Céspedes & Cabrera (2005) proposed a four-dimensional model that determines organizational learning capability. These dimensions are: the commitment by management, a systems perspective, openness and experimentation, and knowledge integration and transfer. The first dimension, the commitment by management, refers to the fact that management must recognize the importance of learning, developing a culture that promotes the acquisition, creation and transfer of knowledge as fundamental values (Stata, 1989; McGill et al., 1992; Garvin, 1993; Nonaka & Takeuchi, 1995) and articulating a strategic vision of learning, making it, in turn, a central element (Ulrich, Von Glinow & Jick, 1993; Slocum, McGill & Lei, 1994; Nevis, DiBella & Gould, 1995; Hult & Ferrell, 1997).

The systems perspective involves guiding the organization and its members towards a common identity (Senge, 1990; Sinkula, 1994). The departments and individuals in the organization must have a clear vision of the objectives and understand how they can assist in their development (Hult & Ferrell, 1997; Lei, Slocum & Pitts, 1999). Striving for a climate of openness and experimentation necessitates generative or double-loop learning, favored by an attitude of mental openness that welcomes the arrival of new ideas and perspectives, both internal and external, thus permitting individual knowledge to be constantly renewed, expanded upon and improved (Senge, 1990; Leonard-Barton, 1992; Slocum et al., 1994; Sinkula, 1994).

Knowledge integration and transfer is the fourth dimension, which refers to the two closely related processes that occur simultaneously: the internal transfer and the integration of knowledge. The efficacy of these two processes is based on the prior existence of the capacity for absorption (Cohen & Levinthal, 1990), which implies the elimination of internal barriers that prevent the transfer of best practices inside the company (Szulanski, 1996).

Jerez-Gómez, Céspedes and Cabrera (2005) used these four dimensions to develop and successfully test a scale to measure organizational learning capability.

### **2.3. TMX: Team member exchange**

The relationship of support or exchange between an individual and his or her work team (team member exchange, TMX) is defined as the quality of the interpersonal relationships that exist between said individual and his or her teammates, understood in a global manner (Seers, 1989).

This concept was proposed by Seers (1989) as a construct for generating functions complementary to the quality of the leader-member exchange (LMX). It specifically refers to “the individual’s perception of his or her exchange relationship with peers within the work group as a whole,” (Seers, 1989, pp. 119).

Based on LMX theory, Seers (1989) suggested that individuals are involved in a process of establishing functions with their work groups. Thus, TMX theory, not unlike LMX theory, is based on functional theory (Katz & Kahn, 1978) and social exchange theory (Homans, 1961; Blau, 1964), which suggest that an individual’s responses when performing his or her functions can be understood as the product of the interaction between the individual and the set of the issuers of functions with which he or she generally interacts. Normally, the key members in terms of his/her set of functions are his/her supervisor and colleagues. However, Seers (1989) indicates that research on this phenomenon has focused on the supervisor as the issuer of functions, neglecting the effects of work relationships among colleagues in the individual’s group, which are also of special interest.

Empirical studies have shown that the quality of TMX is related to the job satisfaction of its members and their performance (Seers, 1989), as well as the identification, commitment and turnover rate of the team members (Hellman, Witt & Hilton, 1993). The average level of TMX within a work team is expected to correspond to the group’s effectiveness.

### **2.4. Innovative behavior**

In a competitive global environment that is characterized by being both intense and dynamic, the development of new products and processes is increasingly becoming a key aspect of competition. Companies that enter the market faster and more efficiently than their competitors do so by offering products that closely meet the needs and expectations of their target consumers, thus significantly improving their competitive standing (Takeuchi & Nonaka, 1986; Prahalad & Hamel, 1990; Nonaka, 1994; Nonaka & Takeuchi, 1995).

Innovation is acknowledged as a source of competitive advantage and thus the success of the company. Similarly, different empirical studies have provided evidence of the positive effect of innovation on the company's performance in terms of profitability, growth and effectiveness (Prajogo & Ahmed, 2006; Berson et al., 2008). Companies need to innovate in their quest for both long-term survival and competitive advantage (Tidd et al., 2001; Simon et al., 2002).

Innovative work behavior (IWB) can be defined as the set of all individual actions aimed at the generation, introduction and application of some beneficial innovation at any level of the organization (West & Farr, 1989). Gebert (2002) defines innovation as an organization's capacity to improve its products or processes, and to exploit the innovative potential, and highlights the significance of the innovative initiatives of employees as an important element of organizational innovation, beyond great technological advances.

IWB is also related to the organizational culture, as it can create commitment among the members of an organization in terms of establishing innovation as an organizational value and accepting the common norms related to innovation within the organization (Hartmann, 2006). Some studies indicate, for example, that so-called high-performance practices facilitate knowledge management and information exchange (Laursen & Foss, 2003) and that various human resource practices that are aligned to promote learning are also associated with a higher level of organizational innovation (Shipton et al., 2006) and organizational commitment (Grover & Crooker, 1995; Rodwell, Kienzle & Shadur, 1998; Schwochau, Delaney, Jarley & Fiorito, 1997; Chen, Greene & Crick, 1998).

### **3. Development of the model hypotheses**

Understanding self-efficacy as the personal conviction of an individual to take on and successfully perform complex tasks, TMX as the cohesion and understanding among the members of a work team, OLC as the perceived competence in an organization to arrange the learning of its team members, and IWB as individual actions aimed at generating, introducing and applying a beneficial innovation within the organization, a model is proposed and tested, in which self-efficacy can positively impact IWB, mediated by OLC and TMX. To do so, we studied public secondary education institutions in the city of Cali, Colombia, using structural equation models as the statistical methodology to verify the hypotheses.

Based on the above, the following hypotheses are proposed, as shown in Figure 1:

*Hypothesis H1: The self-efficacy of the leader is positively related to the innovative behavior of the team member.*

*Hypothesis H2: The self-efficacy of the leader is positively related to the organizational learning capability of the team member.*

*Hypothesis H3: The self-efficacy of the leader is positively related to the level of team member exchange.*

*Hypothesis H4: The team member's organizational learning capability has a positive impact on the innovative behavior of the individual.*

*Hypothesis H5: The team member exchange level positively affects the innovative behavior of the individual.*

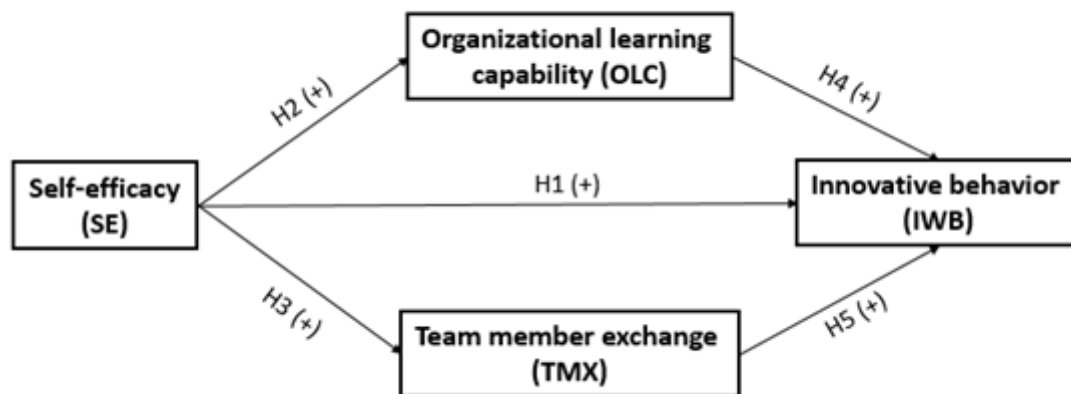


Figure 1. Proposed relationship between self-efficacy and innovative behavior, considering organizational learning capability and team member exchange



## 4. Research methodology

The objective of the study is described below, followed by the definition of the variables (factors) with their corresponding dimensions (sub-factors) and respective scales (statements) from the questionnaire, as well as the model used to test the different hypotheses.

### 4.1. Aim of the study

To study the relationships among the constructs SE, OLC, TMX and IWB, the network of official institutions of secondary education in the city of Cali, Colombia, were selected. This system meets the following conditions:

- It is open enough to ensure variability in the constructs, particularly those closest to the group environment, such as TMX and OLC. In this context, a company operating in a single or very few locations would be too homogeneous for our purpose.
- It is not so dispersed that environmental differences, such as the organizational culture and strategic statement, would affect the relationships among the selected constructs. This consideration would also make it inappropriate to work with a set of different companies.
- It enables information to be obtained on both individual and group variables.
- It enables any potential common bias problems to be overcome (Scott & Bruce, 1994), as information on the different constructs is obtained from different sources.

From a total population of 91 educational institutions in the city, 40 were visited, and a total of 507 staff members were interviewed (including both leaders and team members) from 96 work teams; these numbers represent 44.1% of the institutions, 12.7% of the teaching staff and 21.1% of the area teams.

### 4.2. Study variables

The study variables are the constructs SE, OLC, TMX and IWB. Self-efficacy acts as an exogenous or independent variable of the rest of the variables; the construct IWB is a purely endogenous variable, while OLC and TMX are mediating variables, which thus operate as dependent variables of SE and exogenous variables for IWB.

OLC operates in four dimensions: the commitment by management, a systems perspective, openness and experimentation, and knowledge integration and transfer. Meanwhile, in the case of the constructs TMX and IWB, while each contains certain slightly differentiable nuances, these fail to constitute separate dimensions in and of themselves, for which they are considered to be first order constructs.

FACTOR	SUBFACTOR	SUBFACTOR NOMENCLATURE	No. of items		Source of the scale
SE	Self-efficacy	SET	6	6	Parker (1998). <i>Journal of Applied Psychology</i>
OLC	Commitment by management	LMCT	5	16	Jerez-Gómez, Céspedes-Llorente and Valle-Cabrera (2005). <i>Journal of Business Research</i>
	Systems perspective	LSPT	3		
	Openness and experimentation	LEXT	4		
	Knowledge transfer	LTRT	4		
TMX	Support among team members	TMXT	12	12	Seers (1989). <i>Organizational Behavior and Human Decision Processes</i>
IWB	Innovative behavior	IWBT	6	6	Scott & Bruce (1994). <i>Academy of Management Journal</i>

Table 1. Mnemonics of the variables and sources of the measurement scales. Source: Authors' own work, based on Parker (1998), Jerez-Gómez et al. (2005), Seers (1989) and Scott and Bruce (1994)

The model consists of the four constructs (latent variables) and their relationships; each construct, in turn, will be determined by the items of its corresponding dimensions, as shown in Table 1. A 7-level Likert scale was established for all items (Sánchez & Cañada, 1998), ranging from “Completely disagree” (value 1) to “Completely agree” (value 7).

The questionnaire consists of a set of scales that represent theoretical concepts or latent variables through their items or manifest variables. Each questionnaire contains 40 items. The coordinator or leader of each team responded to his or her own SE questionnaire and the IWB questionnaires for each team member surveyed. Meanwhile, each team member answered questionnaires for the constructs OLC and TMX. Table 1 shows the mnemonic names for each variable in the testing process, as well as the number of items and its respective source.

### **4.3. Verification tests**

To carry out this research, a factor analysis was initially conducted on the items corresponding to the dimensions of the respective constructs (SE, OLC, TMX and IWM), in the form of a confirmatory factor analysis (CFA) (Thompson, 2004). The number of factors was not left open, as in a pure EFA, rather, we limited it to the number of variables or constructs involved, which was four in this case. The expected result of the analysis is that all the items of the dimensions of a single construct will “load” (demonstrate their statistical relevance) on it and not on other constructs. IBM SPSS Statistics 24 software was used for this procedure.

The statistics software package AMOS 24 from IBM was used to carry out the actual testing of the proposed hypotheses, using structural equation model methodology (SEM), according to the procedures and indicators typically used for this technique (Bollen, 1989); the SEM enable complex relationships to be precisely determined among the observable variables and latent variables. Finally, the extent of the mediation by the proposed variables in the model was verified for this purpose, in this case, pertaining to the constructs OLC and TMX.

## **5. Statistical testing and empirical findings**

This section presents the statistical testing of the study proposals, i.e., the factor analysis, SEM methodology to determine the significance of the hypotheses and the analysis of the mediation of the variables:

### **5.1. Factor analysis**

Factor analysis was carried out using three measurements: the “loads” of the items on the factors, KMO and Bartlett tests, and the explained variance. Table 2 shows the “loads” of the items for each factor on each variable in the model.

FACTOR		ITEM	LOAD
SE	SET	I feel sure of myself when analyzing a long-term problem to find a solution.	0.595
		I feel sure of myself when representing my work area at meetings with my bosses.	0.726
		I feel sure of myself when I have to take part in discussions about the institution's strategy.	0.835
		I feel sure of myself when I help set goals in my work area.	0.823
		I feel sure of myself when I interact with people outside the institution (i.e., suppliers, parents, etc.).	0.562
		I feel sure of myself when presenting information to a group of colleagues.	0.778
OLC	LMCT	The team coordinator frequently involves his/her staff in important decision-making processes.	0.529
		Learning by the teaching staff is considered more of an investment than an expense.	0.500
		The institutional leadership favorably considers making changes in any area to adapt to or stay on the forefront of new situations that arise in the organizational environment.	0.729
		The learning capacity of the teaching staff is considered to be a key factor at this institution.	0.552
		Innovative ideas that work are rewarded at this institution.	0.732
	LSPT	All teaching staff members on the team have general knowledge of the team's objectives and those of the institution.	0.499
		All areas on the institution (departments, sections, work teams and individuals) are aware of how to contribute to reaching the general goals.	0.711
		All parts of the institution area interconnected, working together in a coordinated manner.	0.776
	LEXT	This institution promotes experimentation and innovation as a way to improve work processes.	0.755
		This team follows what other teams and institutions are doing in the sector, adopting techniques and practices that it believes to be useful and interesting.	0.737
		The experiences and ideas provided by external sources (consultants, providers, etc.) are considered a useful instrument for learning in this work group.	0.644
		Part of the culture of this team and the institution is that teaching staff can express their opinions and make suggestions regarding the methods and procedures established for performing tasks.	0.597
	LTRT	Errors and shortcomings are always discussed and analyzed on this work team at all levels.	0.667
		The teaching staff has the opportunity to talk amongst themselves about new ideas, programs and activities that could be useful for the team and for the institution.	0.516
		At this institution, team work is the way in which work is usually done.	0.577
		The institution has instruments (manuals, databases, files, organizational routines, etc.) that permit what has been learned in past situations to remain active, even when the teaching staff is not the same.	0.735
TMX	TMXT	My colleagues on this team help me learn new ways of doing things at work.	0.626
		My colleagues on this team have confidence that I will be able to meet the expectations of my work.	0.700
		I suggest to my colleagues on this team ways to improve how we do things, without this causing any problems or awkwardness.	0.611
		When I make a mistake, my colleagues tell me about it in stride, without any fear of offending me.	0.615
		When my colleagues do something poorly, I tell them about it in stride, without any fear of offending them.	0.540
		My colleagues on this team recognize my professional potential.	0.701
		My colleagues on this team understand my problems.	0.525
		I have great flexibility when it comes to trading shifts, working hours or tasks with my colleagues.	0.650
		When I cannot do something or I have a problem, I usually ask my colleagues for help.	0.804
		In general, when a colleague on this team does not know how to do something or has a problem, I offer him or her my help.	0.759
		If a colleague is overworked, I generally offer help, even though I know these tasks are not my responsibility.	0.678
IWB	IWBt	The team member seeks out new technologies, processes, techniques and/or ideas for projects.	0.833
		The team member generates creative ideas.	0.829
		The team member promotes and defends his or her ideas to the rest.	0.710
		The team member investigates and specifies the funds needed to implement new ideas.	0.809
		The team member develops adequate plans and organizes a calendar to implement new ideas.	0.847
		The team member is innovative.	0.868

Loads for each item on the rotated components, i.e., the constructs, using the principal component analysis method of extraction, with four factors determined and using Varimax normalization with Kaiser rotation.

Table 2. Factor analysis: "loads" of the items on the constructs. Source: SPSS 24: factor analysis output with the survey data

The “loads” for the items were assigned as expected, as shown in Table 2. In fact, all items on each scale (SE, OLC, TMX and IWB) have presented their greatest “load” on their corresponding factor, evidencing the discriminant power of the information obtained from the surveys.

Table 3 corroborates the previous result with a KMO test result of 0.931, which classifies the sample fit for the analysis as excellent, which is corroborated by the significance of the Bartlett’s test.

KMO and Bartlett’s tests		
Kaiser-Meyer-Olkin test of sample adequacy		0.931
Bartlett’s test of sphericity	Approx. chi-square	13200.851
	df	780
	Sig.	0.000

Table 3. Factor analysis: KMO and Bartlett’s tests. Source: SPSS 24: factor analysis output with the survey data

Table 4 presents the results of the explained variance. The total explained variance accounts for 70%, corresponding to the traditionally acceptable value.

Variable	% of variance explained
TMX	22.305
OLC	21.757
IWB	13.924
SE	11.671
Cumulative	69.657

Table 4. Factor analysis: explained variance.  
Source: SPSS 24: factor analysis output  
with the survey data

## 5.2. Testing of the model hypotheses

Table 5 shows the statistical results of the model tested using SEM methodology. It shows that an acceptable fit of the theoretical model has been obtained as compared to reality, according to the indicators TLI, CFI, RMSA and  $\Psi^2/df$ .

Likewise, the relationships established in hypotheses H1, H2, H3, H4 and H5 have been tested, with a statistical significance greater than 95%. Furthermore, all coefficients were positive (+ sign), which fully supports the model proposed for the test presented in Figure 1.

Hypotheses and fit	H1	H2	H3	H4	H5	$\Psi^2/\text{df}$	TLI	CFI	RMSA
Coefficients	0.700***	0.254***	0.257***	0.130***	0.095**	2.60	0.86	0.89	0.08

Significance:\*\*95%; \*\*\*99%.

Setting values: TLI and CFI are acceptable (Bentler & Bonett, 1980; Bollen, 1989; Bentler, 1990); RMSA is acceptable (Brown & Cudeck, 1993);  $\Psi^2/\text{df}$  is acceptable (Marsh & Hocevar, 1985)

Table 5. Results of the model. Source: Authors' own work, based on the SEM of AMOS 24

According to the information supplied in Table 5, we can confirm all five hypotheses proposed (see Figure 2), which are the following:

*Hypothesis H1: The SE of the leader is positively related to the IWB of the team member.*

*Hypothesis H2: The SE of the leader is positively related to the OLC of the team member.*

*Hypothesis H3: The SE of the leader is positively related to the TMX.*

*Hypothesis H4: The OLC of the team member has a positive impact on the IWB of the individual.*

*Hypothesis H5: The TMX positively impact the IWB of the individual.*

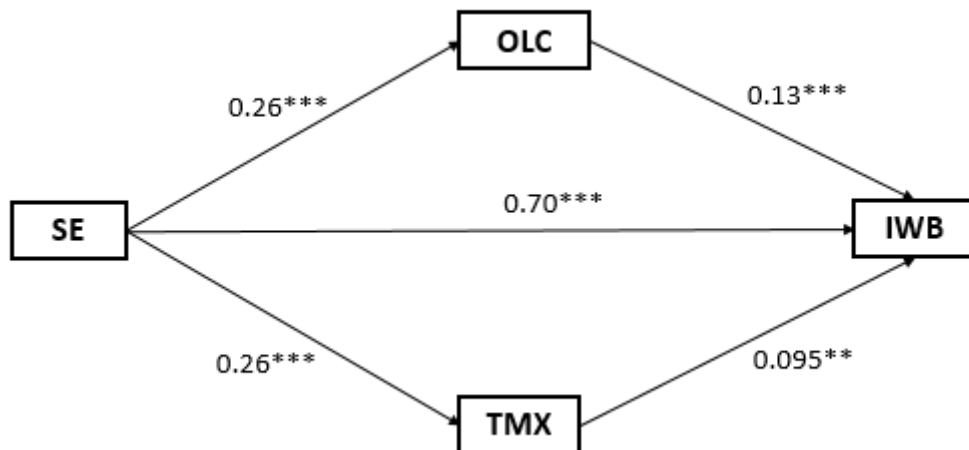


Figure 2. Empirical findings of the study: Relationships between constructs SE, OLC, TMX and IWB

### 5.3. Variable mediation analysis

In this section, the procedures recommended by Baron and Kenny (1986) and Shrout and Bolger (2002) are followed, which require the evaluation of the conceptual or mediated models and the direct or unmediated models for the variables that may operate as mediating variables.

The following models are thus established to evaluate the mediation of the variables OLC and TMX, which are also illustrated in Figure 3:

MODEL 1A: This is the original (complete and mediated) model. It is run in SEM, with all items and all relationships.

MODEL 1B: It is the complete model without the mediation of TMX; the TMX-IWB (H5) relationship has been eliminated. It is run in SEM, with all items.

MODEL 1C: It is the complete model without the mediation of OLC; the OLC-IWB (H4) relationship has been eliminated. It is run in SEM, with all items.

MODEL 1D: It is the complete model without the mediation of TMX or OLC (H5 and H4). It is run in SEM, with all items.

The results of the tests for these models are shown in Table 6.

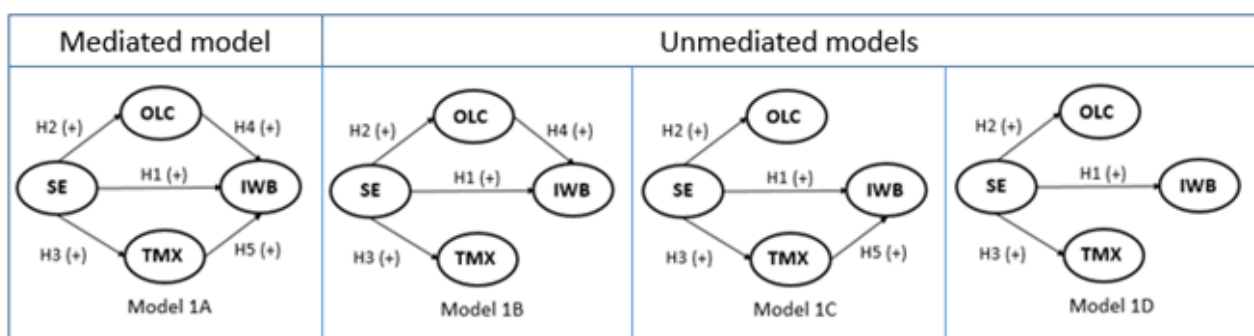


Figure 3. Mediated and unmediated models

The calculations for the  $\Delta\chi^2/\Delta df$  parameter in Table 5 enable us to establish the statistical significance of the mediation of the OLC and TMX constructs, since in the comparison of the direct model

(Model 1D) with its respective conceptual model (Model 1A), the describing parameter, with a value of 12.72, exceeds the lower limit set at 3.82.

This doesn't occur with the models that present a single mediating variable (Models 1B and 1C) as compared to the conceptual model (Model 1A). In these cases, the corresponding descriptive parameters  $\Delta\Psi^2/\Delta df$  do not exceed the value 3.82, which means that the suppression of a single mediating variable does not significantly alter the behavior of the variables in the model; in other words, a single mediating variable (OLC or TMX) would be enough to explain the mediated effect of SE on IWB.

PARAMETER	$\Psi^2$	df	$\Delta\Psi^2$	$\Delta df$	$\Delta\Psi^2/\Delta df$	Mediation fit
MODEL 1A	6937.20	1590	BASE	BASE	0.00	
MODEL 1B	6939.67	1591	2.47	1	2.47	NO
MODEL 1C	6940.91	1591	3.71	1	3.71	NO
MODEL 1D	6962.63	1592	25.43	2	12.72	YES

The variable can be considered to have a significant mediation if for each unit of difference in the degrees of freedom between the mediated and unmediated models there is a difference greater than 3.82 in the corresponding parameter  $\Psi^2$  values (Shrout & Bolger, 2002).

Table 6. Fit of the mediation. Source: Authors' own work, based on the SEM outputs in AMOS 24

As a general result of this section, we have obtained empirical evidence of the mediating role of the constructs OLC and IWB, i.e., they explain part of the variation or effect that the SE of the team leader has on the IWB of the employees on the team.

In summary, the model proposed by the study has positively demonstrated the initially proposed relationships, evidencing the positive correlation between the self-efficacy (SE) of the team leader and the innovative behavior of the individual (IWB); in other words, self-efficacy is a determining factor in innovative behavior. Furthermore, the model provided empirical evidence on the mediating role played by OLC and TMX in this positive relationship between the leader's SE and the team member's IWB on the work team.



## 6. Conclusions

The model proposed by the study has positively demonstrated the initially proposed relationships, evidencing the positive correlation between the self-efficacy (SE) of the team leader and the innovative behavior of the individual (IWB); in other words, self-efficacy is a determining factor in innovative behavior. Furthermore, the model provided empirical evidence for the mediating role played by OLC and TMX in this positive relationship between the leader's SE and the team member's IWB on the work team.

The present study thus provides empirical evidence of the positive and highly significant relationship between the self-efficacy of the leader and the innovative behavior of the team member. It represents a contribution to the knowledge on the handling of complex processes related to human resources in today's organizations, as framed within resource capacity theory, and more specifically, in the field of study of positive organizational behavior, a current research interest (Wright, 2003).

The study results can be used to establish several contributions made by the empirical evidence to the relationships among the theoretical constructs. First of all, in agreement with emerging research on social cognitive theory (for example, Stajkovic & Sommer, 2000), SE, OLC and TMX have an additive effect on their positive relationship with IWB. This offers administrators and organizations opportunities to increase the value of their companies, based on evidence supporting the action of the three aforementioned constructs on IWB.

Secondly, relying on previous research (Parker, 1998; Scott & Bruce, 1995; Jerez-Gómez et al., 2005; among others), the results of this study suggest that the extended set of psychological resources can be particularly relevant for strengthening the innovative behavior of employees in a framework of positive relationships (leader-team member [SE], company-team member [OLC], team member-team member [TMX]), confirming in a common sense the conventional wisdom that employees are most creative when they operate in a positive environment with an open mentality.

Thirdly, this research proposes and provides empirical evidence of the mediation of OLC or TMX on the impact of the leader's SE on the team member's IWB. In fact, this finding constitutes a significant academic contribution, as it reveals the need to promote the intermediate constructs in order to achieve better performance of SE on IWB. Both the systemic learning objectives posed by OLC and the individual behavior related to rational open-mindedness promoted by TMX seem to be critical for effective problem solving and innovative behavior in general. Therefore, SE, OLC and TMX, as well as the way in which they are related to one another in the tested model, represent a new joint focus for

building this behavior on the part of employees, permitting the boosting of their creativity and IWB in general.

Fourthly, the demonstrated positive relationship between the quality of TMX and the level of IWB corresponds to a specific aspect of social exchange theory, through mechanisms of perceived organizational support (Bishop Kuratko, Hornsby & Bishop, 2005), cohesion and the generation of trust (Calnan & Rowe, 2007). In this context, the present research contributes to validating these mechanisms by contributing empirical evidence on the relationship between the two previously mentioned variables.

A fifth contribution of this research can also be mentioned, which consists of having empirically demonstrated the positive relationship between TMX and IWB. This relationship had been suggested and theoretically defended by Scott & Bruce (1994), but it ended up being the only one of the eight hypotheses that was not validated. Our study used the same scale used by Scott & Bruce (1994) to measure the IWB variable, but with one difference that in their study, the observation of IWB was performed by the individual him or herself, while in our case, it was carried out by the work team leader or coordinator, in an attempt to obtain a more objective rating of the observed behavior, thus preventing any potential self-rating or common bias (Delgado-Rodríguez & Llorca, 2004).

In the social realm, the present research contributes knowledge that the self-efficacy of the leader operates as an antecedent mechanism for promoting the potential innovative behavior of the individual, both directly and in a mediated manner through the perceived levels of OLC (organization construct) and the quality of TMX. Here is where a mechanism of opportunity arises for organizations that are able to incorporate self-efficacy measures into their team leader selection processes, in an effort to increase the impact on the innovative behavior of their team members.

Focusing on the study itself, we can start by mentioning that the surveys were administered in an organization that was specific enough to avoid problems associated with the contamination of the business culture, but open enough to permit the coexistence of different levels of variables within it. However, it must be acknowledged that the attempt to control the heterogeneous environmental effects that would be imposed by the combination of entities in the observation could limit the extension of the validity of the findings, due to the level of specificity in terms of the type of organization and the regional culture. Future research could greatly expand upon the validity of this study by replicating it in other types of organizations (manufacturing companies, for example) and other cultures (in other cities, but essentially in other countries).

On the other hand, the effect that the cross-sectional study has on the research findings could call into question its inter-temporal validity. Future research could validate the model with the same sample at different times. This would help counteract the environmental distortion bias, although it would be even better to do this, as much as possible, by making changes to some of the variables, either as the result of training (Luthans, Avey, Avolio & Combs, 2006) or the change in the team leader position, or both.

We also suggest future studies to measure the team members' SE in order to both confirm the premise developed by other researchers in the sense that the leader's SE positively influences that of the team members (for example, Walumbwa, Luthans, Avey & Oke, 2011), and to include it and assess its impact on our model.

In the relationships between the independent variable, the mediating variables and the dependent variable in our model can operate complementary others variables and mechanisms proposed by several authors; it is suggested to validate these in future studies, in order to assess their impact on our model. Relationships of organizational commitment to knowledge exchange and OLC (Kalman et al., 2002; Kane et al., 2005; Cabrera et al., 2006), trust relationships, cohesion and TMX (Gruenfeld et al., 1996; Kane, Argote & Levine, 2005) are among the most important.

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